# 925 EAST ARQUES AVENUE
# SUNNYVALE, CA

SUNNYVALE
90.77

Purpose: RCRA Facility Assessment

Site: Hewlett Packard, Data Terminals Division
974 East Arques Avenue
Sunnyvale, CA
Santa Clara County

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| Program Account Number: | FCA1478CAA |
| Report Prepared By: | Janet Kaps JK |
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| FIT Review/Concurrence: | James [illegible] 4/2/91 |
| Submitted To: | Rachel Loftin,<br>EPA Region IX,<br>Site Assessment Manager |


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# 1. INTRODUCTION

Under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and Section 3007 of the Resource Conservation and Recovery Act of 1976 (RCRA), as amended by the Hazardous and Solid Wastes Amendments of 1984 (HSWA), the U.S. Environmental Protection Agency (EPA) has tasked Ecology and Environment Inc.'s Field Investigation Team (FIT) to conduct a RCRA Facility Assessment (RFA) of Hewlett-Packard, Data Terminals Division in Sunnyvale, California.

The RFA has three primary objectives: Identifying and gathering information on releases at RCRA facilities; evaluating solid waste management units (SWMUs) and other regulated units for releases to the environment; and making preliminary determinations regarding any releases of concern and the need for further actions and interim measures at the facility.

The RFA consists of two stages. The first stage, the Preliminary Review (PR), consists of an off-site drive-by of the facility and an evaluation of existing information to identify and characterize potential releases to the environment. This information is used to focus the investigative activities of the second stage of the RFA, the Visual Site Inspection (VSI), which consists of an on-site visit. The VSI confirms and supplements information obtained during the PR stage regarding potential or actual releases at the facility, and determines if sampling or remedial measures are necessary.

This report summarizes information obtained by Ecology and Environment, Inc.'s Field Investigation Team (FIT) during the PR and VSI regarding releases from the facility and the site's eligibility for listing on the National Priorities List (NPL). Information sources utilized include interviews and file searches at the EPA, California Department of Health Services, and California Regional Water Quality Control Board. and a site visit with representatives of Hewlett Packard, Data Terminals Division.

# 2. FACILITY DESCRIPTION

## 2.1 SITE LOCATION AND OWNER/OPERATOR HISTORY

Hewlett Packard, Data Terminals Division (H-P) is located in an industrial area approximately 8 miles northwest of San Jose, in the Santa Clara Valley, at 974 East Arques Avenue, Sunnyvale, California (Township 6 South, Range 1 West, Section 24, Mount Diablo Base Line and Meridian; Latitude: 37° 22′ 50", Longitude 122° 00′ 12") (See Figure 2-1, Site Location Map). The 36-acre facility consists of production facilities, a large asphalt parking lot, a maintenance garage, and recreation facilities. H-P manufactures electronic equipment and circuit boards (1,2,3,4).

Three attached buildings designated as Buildings 70, 71, and 72 are collectively referred to as the production facility. However, manufacturing activities only occur in Building 71, while Buildings 70 and 72 are used primarily as office space. The buildings are surrounded by asphalted parking areas and landscaping. A fourth building, designated as Building 73, is utilized as a training center and contains numerous conference rooms (See Figure 2-2, Facility Map) (3,4).

The west portion of the manufacturing building, Building 70, was built by Fairchild Corporation in 1967. Prior to 1967 the land was used as agricultural farmland. Fairchild occupied Building 70 until 1972. From 1972 to 1979, the facility was operated by another H-P division, the Automatic Measuring Division. The H-P division that currently operates on site, the H-P Personal Office Computer Division (Data Terminals Division), has been in operation since 1979 (3,4,39).

In 1979, H-P constructed additional production areas on the original facility. These additions are Building 71 and 72 on the east side of the facility. Building 71 was constructed with a basement. A French drain system was installed in conjunction with the basement due to a high groundwater table in the area. The French drain system is used to pump groundwater away from the basement. The discharge of groundwater from base map source: USGS 1:24000 Mountainview, Milpitas, Cupertino & San Jose West quads


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Figure 2-1

SITE LOCATION -- HEWLETT - PACKARD

974 East Arques
Sunnyvale, CA

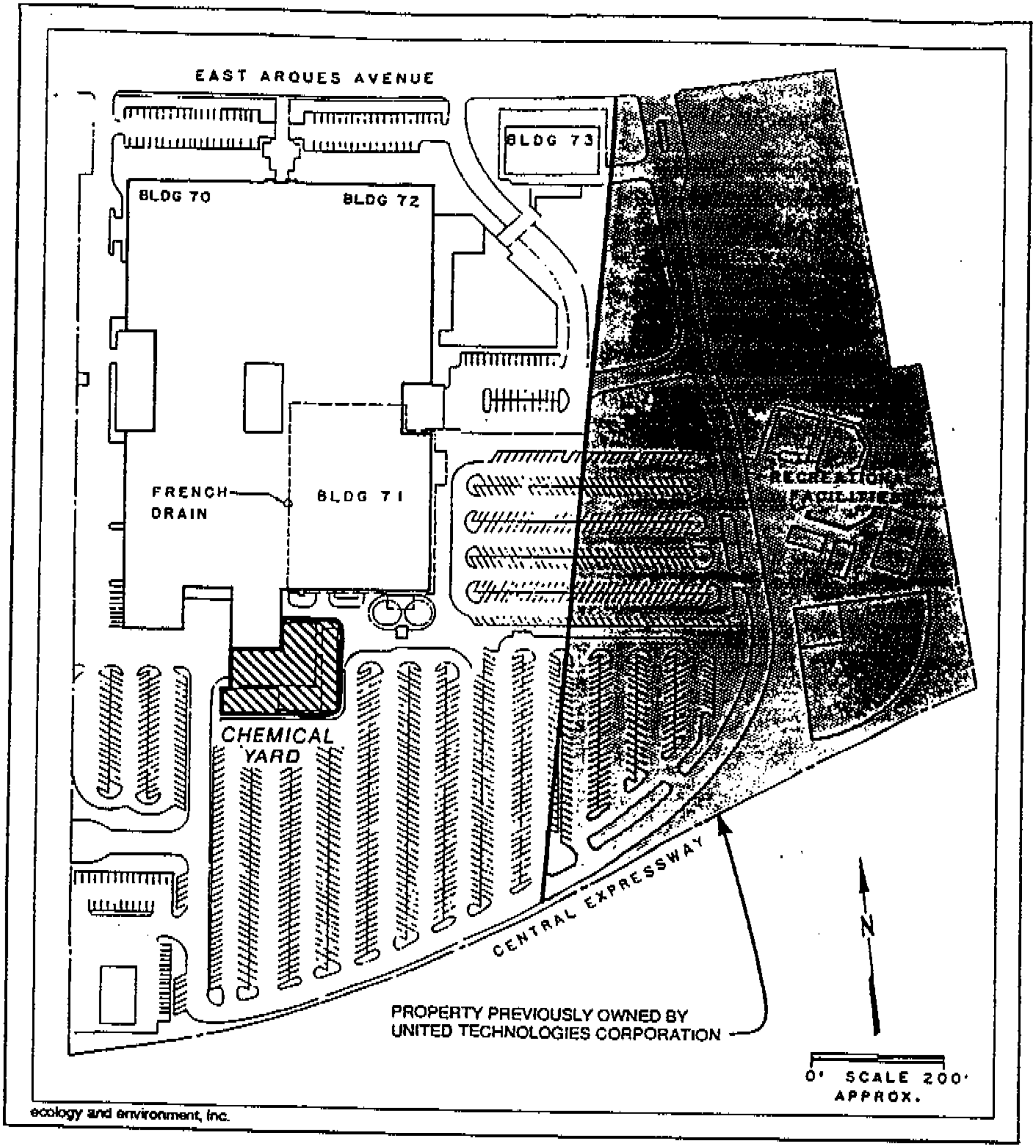


Figure 2-2

FACILITY MAP
Hewlett-Packard
974 East Arques Avenue
Sunnyvale, California

the French drain system to the storm drain and into Calabazas Creek began in 1979 (3).

In 1984, H-P purchased an adjacent 10-acre parcel from United Technologies Corporation (UTC) (EPA ID #CAT080033525) (See Figure 2-2, Facility Map). UTC owned and operated this property since 1963 and used it as a research, development, and small-scale testing facility for rocket propellants (3,5). Prior to 1963, the land use was agricultural. There were two permanent buildings on the property: a laboratory building and a test building. UTC maintained three acid waste neutralization sumps, several solvent drum storage areas, and a drainage trench on site. UTC buildings, sumps, drum storage areas, and the drainage trench were demolished and taken off site in 1983. H-P developed the land as a parking lot and recreational area for its employees. The recreational area consists of a large grassy playing field, sand volley ball courts, a patio/barbecue area, and a building for lockers and aerobics (4,5).

## 2.2 FACILITY PROCESSES AND WASTE MANAGEMENT

The circuit board manufacturing process on site involves the cutting and drilling of fiberglass boards, plating the boards with various metals, baking the series of boards together, and packaging boards for shipment off site (1,4).

The wastes generated and managed at the facility include: wastewaters containing copper and nickel, spent alkaline cleaners, spent citric acid, sulfuric acid and copper solutions, spent sodium hypochlorite, spent cartridge filters, copper sulfate crystal sludges, waste nickel sulfate, spent trichlorotrifluoroethane (Freon), spent ammonium hydroxide, Freon/lead-contaminated rags, gloves, and filters, and fiberglass dust contaminated with heavy metals (1).

H-P treats a portion of the waste generated on site. The waste treatment is performed in the basement of Building 71, which has been designated as the treatment area of the facility. Treated liquid waste is discharged to the sewer. All hazardous wastes that cannot be treated on site are sent to recycling facilities. Tanks and drums of hazardous wastes are stored in the Chemical Yard (1).

## 2.3 APPARENT PROBLEM

Volatile organic compounds (VOCs) have been detected in the groundwater beneath the site. There appear to be both on-site and off-site sources of this contamination. H-P is located downgradient from National Semiconductor (NSC), a National Priorities List (NPL) site (See Figure 2-3, Site Location Map with Nearby Facilities). Due to groundwater flow to the north, contaminants in groundwater appear to be migrating from NSC to H-P. H-P has documented on-site sources of contamination. These appear to be a former acid waste neutralization tank used by Fairchild, a former acid waste neutralization tank used by H-P, and H-P's paint-booth tank. There are three potential source areas on the former UTC property: a former solvent drum storage area, a former underground acid waste neutralization sump, and a former drainage trench near a drum storage area (See Figure 2-4, Suspected Source Areas) (3,5).

## 2.4 REGULATORY INVOLVEMENT

### 2.4.1 EPA Status

H-P is listed in the RCRA database as of May 8, 1990 as a hazardous waste Generator, and Treatment/Storage/Disposal facility (TSDF). Notification of Hazardous Waste Activity was entered into the RCRA database on August 1, 1980. The UTC property consisted of 23 acres, 10 acres of which were purchased by H-P. In 1987, a Preliminary Assessment was completed on the UTC site (28).

### 2.4.2 California Department of Health Services Status

H-P received an Interim Status Document (ISD) on March 30, 1981. The California Department of Health Services (DHS) sent a letter to H-P requesting a Part B permit application on October 30, 1985. H-P

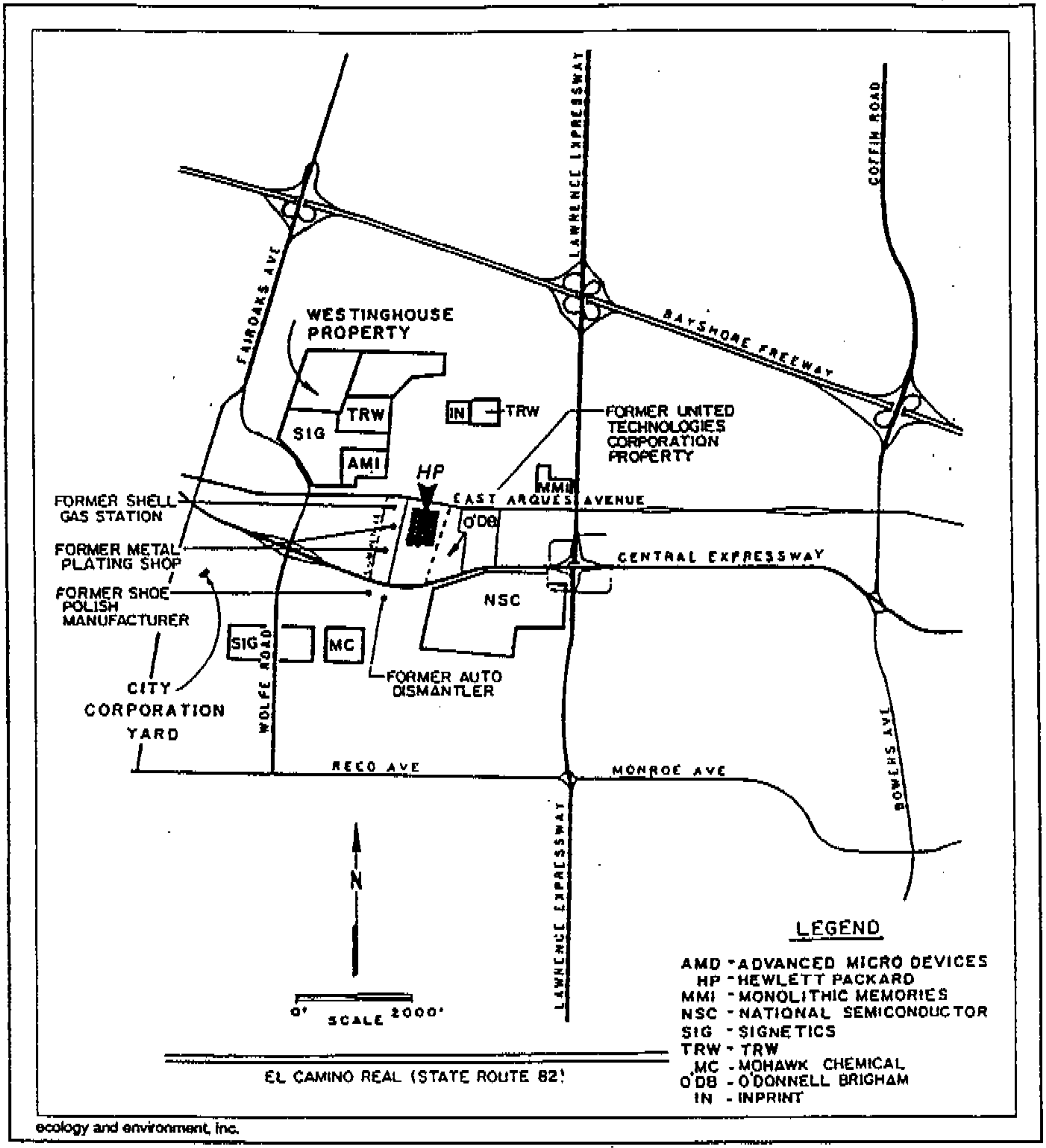


Figure 2-3

SITE LOCATION WITH NEARBY FACILITIES
Hewlett-Packard
974 East Arques Avenue
Sunnyvale, California

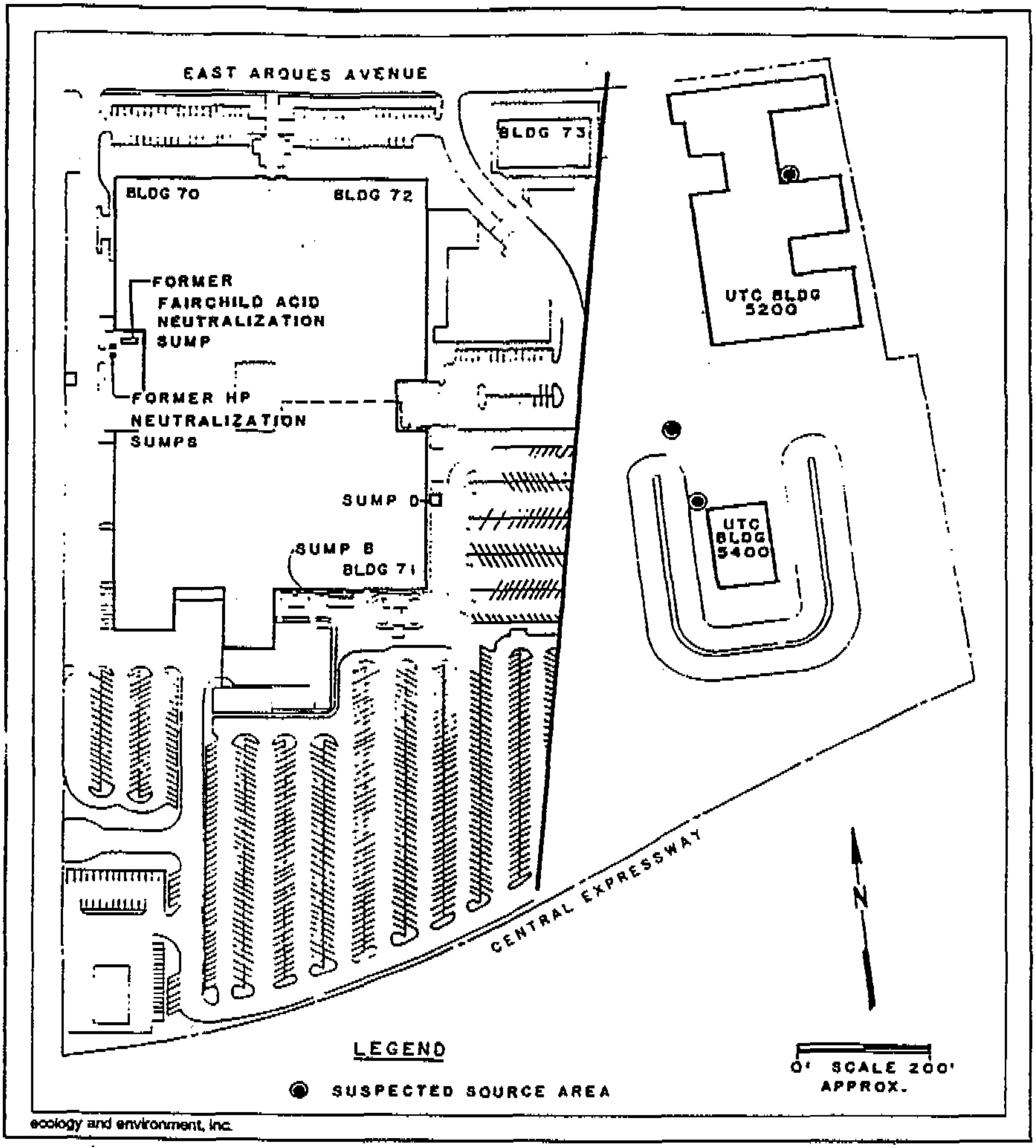


Figure 2-4

SUSPECTED SOURCE AREAS
Hewlett-Packard
974 East Arques Avenue
Sunnyvale, California

submitted the Part B application to DHS in May 1986. DHS has been unable to find H-P's Part B permit application; therefore, H-P is currently considered under Interim Status (6,7,8,45).

H-P originally submitted a Part A permit application after being advised by a DHS inspector to indicate that hazardous waste was stored on site for more than 90 days. H-P did indicate this on its Part A permit application; thus, in the event hazardous waste was stored over 90 days, then H-P would be in compliance. The original Part A permit application also indicated that H-P would be treating hazardous waste on site. Units mentioned in the Part A permit application were the on-site vapor degreaser and the paint shop and chromating operations. On February 28, 1989 H-P revised the Part A permit application to reflect the fact that it does not and never had stored hazardous waste on site for more than 90 days. The revised Part A permit application includes mention of the Citric/Sulfuric Acid Treatment System which removes copper from the associated wastestream. This system was not included in the original Part A application (7,9,40,41).

After review of its on-site processes, H-P concluded that its facility should be exempt from EPA regulation as a hazardous waste facility. In response to their conclusion, H-P has proposed a revision of its current Part A permit application. The revision will involve deleting three wastestreams currently listed (41). H-P is unaware that rescindment of its Part A permit application is possible (46).

On April 11, 1989, DHS issued a Corrective Action Order and Complaint for Penalty. The violations cited in this Order included recordkeeping discrepancies associated with H-P's closure plan, contingency plan, and inspection logs; an incomplete waste analysis plan; H-P's installation of a citric/sulfuric acid treatment system without obtaining an assessment by a registered engineer; employed processes and treated hazardous waste not described in the Part A permit application; and open hazardous waste containers containing filter cake which were noted upon inspection (10). H-P responded to this order and achieved compliance on September 1, 1989 (11).

### 2.4.3 Regional Water Quality Control Board Status

On February 18, 1987, the California Regional Water Quality Control Board (RWQCB) issued a Site Clean-up Requirement Order No. 87-8, requiring H-P to define the extent of contamination in the former Fairchild acid waste neutralization tank area and to develop an interim remedial plan for the site clean-up. According to RWQCB, there has been no off-site migration from the on-site source area. The Site Clean-up Requirement Order also requires the facility to treat contaminated groundwater which has migrated on site from off-site sources (RWQCB No. 87-8). H-P submitted a Proposal for Final Remediation in August 1988 but as of March 16, 1990 the proposal had not yet been approved or commented on by RWQCB (12).

### 2.4.4 Bay Area Air Quality Management District Status

H-P has 13 permits filed with the Bay Area Air Quality Management District (BAAQMD). These permits are associated with production units on site (13). There have been only three permit violations at H-P since January 1, 1985. One violation involved the silkscreen and chase cleaner; another involved a cold cleaner. The type of equipment which was involved in the third violation is unknown to FIT (44).

## 3. DESCRIPTIONS OF INDIVIDUAL SOLID WASTE MANAGEMENT UNITS

Distinct Solid Waste Management Units (SWMUs) have been identified to evaluate potential on-site sources of releases to air, surface water, groundwater, and soil. A SWMU is defined as any discernible waste management unit at a facility from which hazardous constituents might migrate, irrespective of whether the unit was intended for the management of solid and/or hazardous waste. FIT identified 16 SWMUs at the H-P site. Besides identifying SWMUs, FIT has identified three Areas of Concern. Areas of Concern in this report refer to SWMUs which may have contaminated areas that currently do not appear to be related to a SWMU.

Most of the waste generated at the facility is wastewater which is treated in a complex system of tanks located in the basement of Building 71 (See Figure 3-1, Waste Treatment Layout, Building 71). The SWMUS related to this wastewater treatment appear not to be RCRA-regulated because discharge is to the City of Sunnyvale POTW or to Calabazas Creek under a NPDES permit. The rest of the waste is stored in the Chemical Yard or in roll-off bins on site. Storage of hazardous waste on site is less than 90 days, therefore it appears that these storage units are also not RCRA-regulated.

FIT's investigative efforts regarding the Paint Booth/Flash Brite Dip/Alodine Area (see section 3.14) indicate that wastes were removed from the site "periodically" and hauled to an approved disposal facility by a licensed transporter. FIT was unable to determine if waste removal occurred in intervals of less than or greater than 90 days. Therefore, it is unknown whether this SWMU is RCRA-regulated (19).

Records regarding the UTC property and their waste management practices were unavailable to FIT at the time of this investigation. Therefore FIT was unable to determine if the SWMUs associated with the three areas of concern were RCRA-regulated.

## 3.1 NON-CHELATED WASTEWATER BATCH TREATMENT

### 3.1.1 Information Summary

Unit Description: Wastewaters generated upstairs from circuit board manufacturing accumulate and are stored in a 5,500-gallon fiberglass storage tank (T-6) until they can be treated. Spent alkaline cleaners are pumped from plating operations upstairs into a 2,000-gallon storage tank (T-4). From T-4 the wastewaters are piped into T-7 and treated with other wastes as described above (1). From T-6 the wastewaters are piped into a 5,500-gallon fiberglass treatment tank (T-7). Alum, sodium metabisulfite, and sodium borohydride are added to precipitate the metals. A polymer is added to bind to the metals and promote settling. The metals then settle to the bottom and form a sludge. The wastewater is then tested for metals content. If the metals content is above the sewer discharge limits, the solution is treated again until the metals content is acceptable. When needed, wastewater from T-7 can be pumped into another 5,500-gallon fiberglass storage tank (T-8B) for intermediate storage. When T-7 is available the waste is pumped back for treatment (1).

The wastewater is decanted from T-7 through a series of valves located on the side of the tank into a 160-gallon fiberglass holding tank (T-9A). A test volume is taken from each valve before decanting to ensure that no solids enter T-9A. Wastewater in this holding tank is then tested for metals content. If solids are still present in the wastewater in T-9B, the contents of the tank would be emptied into the floor spill system and pumped into either of two 5,500-gallon floor spill collection tanks, T-5A or T-5B. From these tanks the wastewater will be sent back through the treatment system. Under normal operating conditions this treated wastewater in T-9A is considered by H-P to be nonhazardous; i.e., does not contain elevated levels of metals. The treated wastewater is pumped into the first of three 3,800-gallon fiberglass neutralization tanks (See Section 3.10) for neutralization before discharge to the sewer (1).

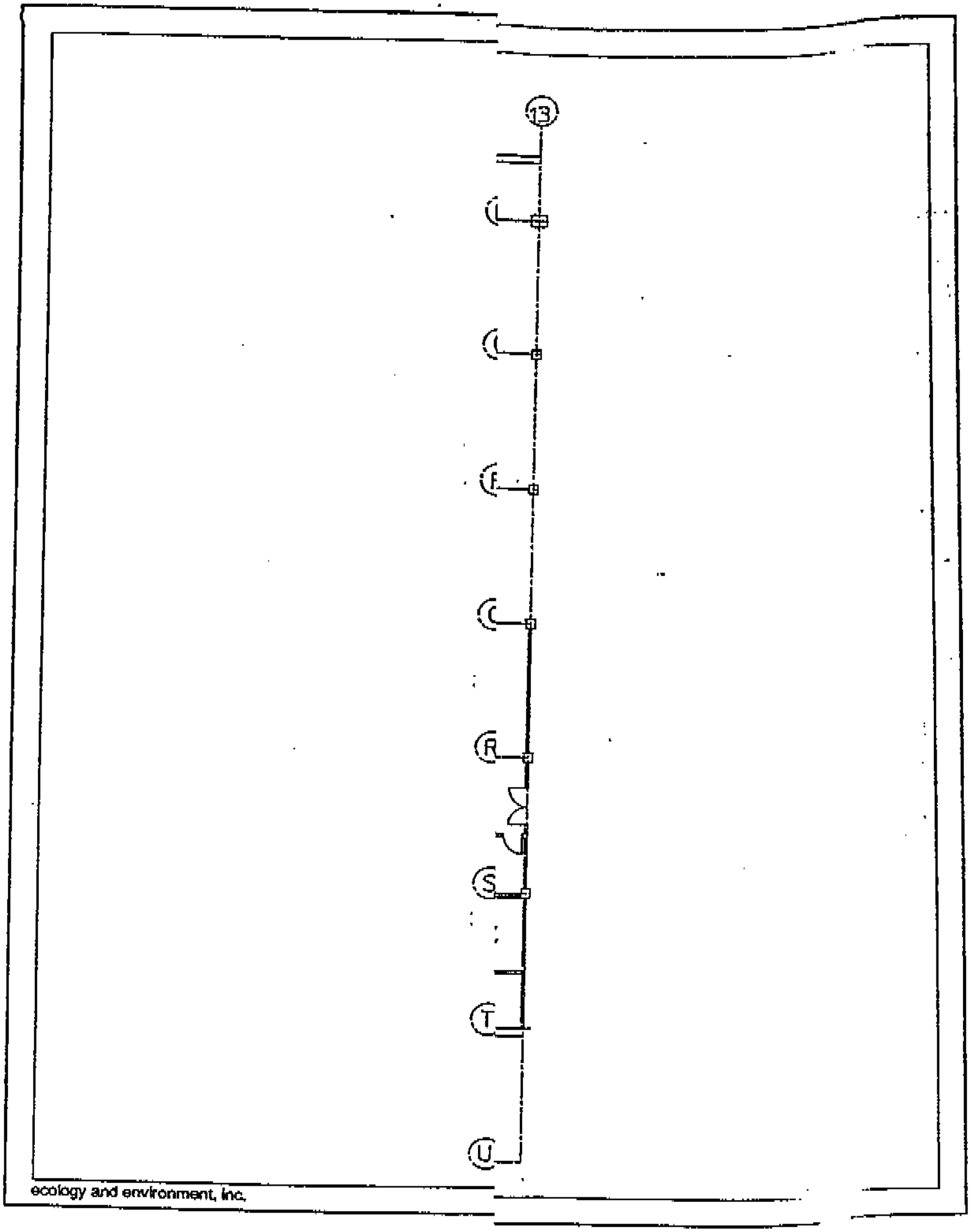


Figure 3-1

TE TREATMENT AND STORAGE
JT IN BASEMENT OF BUILDING 71
Hewlett-Packard
974 East Arques Avenue
Sunnyvale, California

The sludge at the bottom of T-7 is pumped into a 4,200-gallon fiberglass treatment tank (T-16). The sludge is stored here until further settling occurs. The same procedure used to decant wastewater from T-7 into T-9A is used to decant from T-16 into another 160-gallon fiberglass tank (T-9B). The wastewater in T-9B is then tested for metals and managed in the same manner as that of T-9A (1).

The sludge from T-16 is pumped into a filter press to remove the remaining liquid. The liquid from the press is sent to T-9C. The wastewater in T-9C is then tested for metals and managed in the same manner as T-9A. The filter cake is placed into a transport bin and taken outside to the roll-off bins for storage (1).

Date of Start-up: This unit began operation in 1979 (4,14).

Date of Closure: This unit is currently active (4,14).

Wastes Managed: Wastewaters containing 100 to 200 mg/L copper and 40 to 50 mg/L nickel are piped from process areas into T-6. These wastewaters are generated by the rinsing of equipment and other maintenance operations associated with electroplating (1). Spent alkaline cleaners from plating operations upstairs are pumped into T-4, and sent through the treatment process beginning with T-7 (1).

Release Controls: Release controls for this unit include its secondary containment inside the basement of Building 71, and the floor spill collection system (See Section 3.8) (1).

History of Releases: There is no documentation in the available file information or observations from the Visual Site Inspection (VSI) to indicate that a release from this unit has occurred (1,4).

### 3.1.2 Conclusions

Soil/Groundwater Release Potential: There appears to be a low potential for past or future releases from this unit. This unit is in the basement of Building 71.

Surface Water Potential: The potential for wastes from this unit to migrate to surface water is low. The unit is in the basement of Building 71.

Air Release Potential: There is a low potential for a release to air of wastes contained in this unit. The vastes are in liquid and sludge form and typically nonvolatile.

## 3.2 CHELATED WASTEWATER BATCH TREATMENT

### 3.2.1 Information Summary

Unit Description: Wastewater is piped from processes upstairs to a 2,000-gallon fiberglass tank (T-1). The wastewaters are piped into a 5,500-gallon fiberglass tank (T-2). Alum, sodium metabisulfite, and sodium borohydride are added to precipitate the metals. A polymer is added to bind to the metals and promote settling. The metals then settle to the bottom and form a sludge (1).

The same procedure used to decant wastewater from T-7 into T-9A is used to decant from T-2 to a 200-gallon fiberglass tank (T-3). The wastewater in T-3 is then tested for copper and managed in the same manner as that of T-9A (1).

The wastewater and solids at the bottom of T-2 are pumped into a 1,400-gallon fiberglass tank (T-25). The solution is stored here until further settling occurs (1).

The same procedure used to decant from T-7 into T-9A is used to decant from T-25 to a 160-gallon fiberglass tank (T-9C). The wastewater in T-9C is then assayed for copper and managed in the same manner as that of T-9A (1).

The sludge from T-25 is pumped into the filter press to remove the remaining liquid. The filter cake and wastewater are managed as previously described (1).

Date of Start-up: This unit began operation in 1979 (4,14).

Date of Closure: This unit is currently active (4).

Wastes Managed: Wastewaters containing 40 to 50 mg/L copper are piped from process areas upstairs into T-1. These wastewaters are generated by the electroless plating operations and related processes upstairs. The wastewaters accumulate in T-1 until there is sufficient volume for treatment (1).

Release Control: Release controls for this unit include its secondary containment in Building 71 and the floor spill collection system (See Section 3.8) (1).

History of Release: There is no documentation in available file information or observations from the VSI to indicate that a release occurred from this unit (4).

### 3.2.2 Conclusions

Soil/Groundwater Release Potential: There appears to be a low potential for past or future releases from this unit. This unit is in the basement of Building 71.

Surface Water Potential: The potential for wastes from this unit to migrate to surface water is low. The unit is in the basement of Building 71.

Air Release Potential

There is a low potential for a release to air of wastes contained in this unit. The vastes are in liquid and sludge form and typically nonvolatile.

## 3.3 RINSEWATER TREATMENT

### 3.3.1 Information Summary

Unit Description: Wastewater from processes upstairs are piped to a 3,100-gallon fiberglass storage tank (T-11A) at a rate of 100 gallons per minute. The wastewater is continuously mixed while ferrous sulfate and sulfuric acid are added lowering the pH to 2. Wastewater from T-11A overflows into a 2,500-gallon treatment tank (T-11B) where 20% sodium hydroxide is added to raise the pH to 10 or 11. The solution is mixed to keep the metals from settling. The wastewater with suspended metals flows into any one of three 5,000-gallon treatment tanks (T-12A, T-12B, and T-12C). The contents of these tanks is continuously mixed to prevent settling (1).

Some of the wastewater from treatment tanks T-12 A-C are pumped into filter boxes that perform an initial separation of wastewater from solids. This wastewater, from which the solids have been removed, is pumped from the filter boxes into T-13 for pH neutralization before discharge to the sewer. This wastewater is tested for metals content once during each shift. The remaining unfiltered wastewater with accumulating solids is returned to tanks T-12A, T-12B, and T-12C (1).

As a result of the filtering process, the concentration of suspended solids in Tanks 12A, 12B, and 12C increases continuously. When the concentration exceeds 2.5% solids in any one tank, 50-60 gallons of wastewater with solids is pumped every 15 to 20 minutes from that tank into a 4,200-gallon fiberglass storage tank (T-17) (1).

A polymer is added to T-17 to promote settling of the solids which form a sludge at the bottom. This sludge typically contains 20 mg/L copper and 10 to 15 mg/L nickel (1).

The same procedure is used to decant wastewater from T-7 to T-9A is used to decant from T-17 into the holding tank T-9B. The wastewater in T-9B, pH 10-11, is then assayed for metals and managed in the same manner as T-9A (1).

The sludge from T-17 is pumped into the filter press to remove the remaining liquid. The filter cake and wastewater are managed as previously described (1).

Date of Start-up: This unit began operation in 1979 (4,14).

Date of Closure: This unit is currently active (4).

Wastes Managed: Wastewaters containing 0.5 to 80 mg/L copper and 5 to 45 mg/L nickel are piped from process areas into a continuous flow treatment system (1).

Release Control: Release controls for this unit include its secondary containment in Building 71 and the floor spill collection system (See Section 3.8) (1).

History of Release: There is no documentation available in file information or observations from the VSI to indicate that a release from this unit has occurred (4).

3.3.2 Conclusions

Soil/Groundwater Release Potential: There appears to be a low potential for past or future releases from this unit. This unit is in the basement of Building 71.

Surface Water Potential: The potential for wastes from this unit to migrate to surface water is low. The unit is in the basement of Building 71.

Air Release Potential: There is a low potential for a release to air of wastes contained in this unit. The wastes are in liquid and sludge form and typically nonvolatile.

## 3.4 CITRIC/SULFURIC ACID TREATMENT

### 3.4.1 Information Summary

Unit Description: Wastewater from plating baths containing 5% citric acid, 5% sulfuric acid and 20-26 mg/L copper is piped from a copper plating operation to the citric/sulfuric acid treatment unit. The unit consists of a 500-gallon storage tank and a copper plating apparatus. The acid/copper solution is continuously pumped from the tank through the plating apparatus to remove the copper. This cycle is continued until the concentration of copper in solution is less than or equal to 1 mg/L. The treated acid solution is then pumped to T-13 (See Section 3.10) for neutralization before discharge to the sewer (1).

The copper that is collected in the plating process is reclaimed as scrap copper (15).

Date of Start-up: This unit began operation in 1988 (4,14).

Date of Closure: This unit is currently active (15).

Wastes Managed: This unit manages wastewater generated by copper plating processes upstairs which contain 5% citric acid, 5% sulfuric acid and 20-26 mg/L copper (1).

Release Control: Release controls for this unit include its secondary containment in Building 71 and the floor spill collection system (See Section 3.8) (1).

History of Release: There is no documentation in the available file information or observations from the VSI to indicate that a release from this unit has occurred (4).

### 3.4.2 Conclusions

Soil/Groundwater Release Potential: There appears to be a low potential for past or future releases from this unit. This unit is in the basement of Building 71.

Surface Water Potential: The potential for wastes from this unit to migrate to surface water is low. The unit is in the basement of Building 71.

Air Release Potential: There is a low potential for a release to air of wastes contained in this unit due to their nonvolatile nature.

## 3.5 FILTER TREATMENT

### 3.5.1 Information Summary

Unit Description: Spent cartridge filters generated in process lines upstairs are brought downstairs to the basement for treatment. These filters contain metals, other debris, and liquids with a pH of 2-3. The filters are soaked in 5% sodium hydroxide until neutralized. The waste sodium hydroxide solution is pumped into either T-5A or T-5B for storage and then to T-7 for removal of metals. The filters remain in their original container to dry (1).

The facility recycles its copper plating bath by removing the organics and unwanted debris. This treatment generates activated carbon contaminated with organics and cartridge filters contaminated with metals and other debris. The filters are treated in the same manner mentioned above and the carbon is placed in the roll-off bins (See Section 3.9) and sent off site with the sludge (1).

Date of Start-up: This unit began operation in 1979 (4,14).

Date of Closure: This unit is currently active (4).

Wastes Managed: The spent cartridge filters generated in the process line upstairs contain metals, other debris and liquids with a pH of 2-3. The facility's treatment of copper plating baths generates activated carbon contaminated with organics and cartridge filters contaminated with metals and other debris (1). When the filters are dry they are sent to ROMIC (EPA ID #CAD009452657) a recycling company in Palo Alto (15). Past management of the filters was transport to Casmalia (EPA ID #CAD020748125) and Chem Waste Management/Kettleman Hills (EPA ID #CAT000646117) for landfilling (16).

Release Control: Release controls for this unit include its secondary containment in Building 71 and the floor spill collection system (See Section 3.8) (1).

History of Release: There is no documentation in available file information or observations from the VSI to indicate that a release from this unit has occurred (4).

3.5.2 Conclusions

Soil/Groundwater Release Potential: There appears to be a low potential for past or future releases from this unit. This unit is in the basement of Building 71.

Surface Water Potential: The potential for wastes from this unit to migrate to surface water is low. The unit is in the basement of Building 71.

Air Release Potential: There is a low potential for a release to air of wastes contained in this unit. The wastes are in the basement of Building 71 and are typically nonvolatile.

### 3.6 SPENT SCREEN WASH

#### 3.6.1 Information Summary

Unit Description: A solution of 10% hexylene glycol in water is generated by the washing of screens used in the manufacturing of circuit boards. Approximately four 55-gallon drums per week are brought downstairs to the basement to be treated. The waste is pumped from the drums into T-13 and goes through final wastewater neutralization (See Section 3.10) (1).

Date of Start-up: This unit began operation in 1979 (4,14).

Date of Closure: This unit is currently active (4).

Wastes Managed: Approximately four 55-gallon drums of a solution containing 10% hexylene glycol in water are generated by the washing of screens used in the manufacturing of circuit boards. This waste goes through final wastewater neutralization (Unit 3.10) before discharge to the sewer (1).

Release Control: Release controls for this unit include its secondary containment in Building 71 and the floor spill collection system (See Section 3.8) (1).

History of Release: There is no documentation in available file information or observations from the VSI to indicate that a release from this unit has occurred (4).

#### 3.6.2 Conclusions

Soil/Groundwater Release Potential: There appears to be a low potential for past or future releases from this unit. This unit is in the basement of Building 71.

Surface Water Potential: The potential for wastes from this unit to migrate to surface water is low. The unit is in the basement of Building 71.

Air Release Potential: There is a low potential for a release to air of wastes contained in this unit. The wastes are in liquid form and typically non-volatile.

## 3.7 PORTABLE TANK

### 3.7.1 Information Summary

Unit Description: The facility recycles its copper etching process bath wastewater by piping it downstairs and treating it to remove excess copper. The treatment generates a copper sulfate crystal sludge. The sludge is piped into a 200-gallon portable tank. When the tank is full it is rolled to the Chemical Yard (See Section 3.11) and stored until it can be sent to Southern California Chemical for recycling (1).

Date of Start-up: This unit began operation in 1979 (4,14).

Date of Closure: This unit is currently active (4).

Wastes Managed: This unit manages waste from the facility's copper etching process. This waste contains various concentrations of copper which is treated to reclaim as much of the copper as possible. The portable tank containing waste copper sulfate crystal sludge is stored in the Chemical Yard until it can be transported off site for recycling (1).

Release Control: Release controls for this unit when it is in the basement of Building 71 includes the floor spill collection system (See Section 3.8) (1). When the portable tank is moved into the Chemical Yard (See Section 3.11) the secondary containment consists of a trench along the front of the building which will route any spills to the floor spill collection system in the basement of Building 71 (14).

History of Release: There is no documentation available in file information or observations from the VSI to indicate that a release from this unit has occurred (4).

3.7.2 Conclusions

Soil/Groundwater Release Potential: There appears to be a low potential for past or future releases from this unit. This unit is in the basement of Building 71.

Surface Water Potential: The potential for wastes from this unit to migrate to surface water is low. The unit is in the basement of Building 71.

Air Release Potential: There is a low potential for a release to air of wastes contained in this unit. The waste is in sludge form.

## 3.8 FLOOR SPILL COLLECTION SYSTEM

### 3.8.1 Information Summary

Unit Description: Two 5,500-gallon fiberglass tanks (T-5A, T-5B) are part of the floor spill collection system used in the basement of Building 71. The system includes piping connected to drains scattered throughout the basement floor. The floor slopes toward the drains. The basement floor is designed to provide secondary containment for the wastewater treatment systems. The floor slab is constructed of a 24-inch reinforced concrete foundation slab overlain with a 3 to 6 inch thick topping slab and contains numerous sumps which are typically 3 feet by 3 feet by 4 feet deep. All floor surfaces, sumps, sink basins, and concrete footings are sealed with epoxy coating (14).

There are drains spaced throughout the basement of Building 71 which lead to this system (4).

Date of Start-up: This unit began operation in 1979 (4,14).

Date of Closure: This unit is currently active (4).

Wastes Managed: This unit manages any wastes that are spilled in the basement of Building 71. The wastes which may go through this system are described in Sections 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.9, 3.10, and 3.11. These wastes may be acidic or basic, and contain metals including copper and nickel.

Release Control: Any spills or leaks on the basement floor drain to the floor sumps. The sumps are equipped with level-controlled sump pumps which pump any spilled material to T-5A or T-5B. The secondary containment capacity of the Building 71 floor slab is approximately 58,261 gallons. This exceeds 100% of the capacity of the largest storage tank and 110% of the aggregate capacity of all storage tanks. The floor spill collection itself does not have any secondary containment associated with it but all drains and sumps are embedded in the concrete floor slab (14).

History of Release: There is no documentation available in file information or observations from the VSI to indicate that a release from this unit has occurred (4).

### 3.8.2 Conclusions

Soil/Groundwater Release Potential: There appears to be a low potential for past or future releases from this unit. This unit is in the basement of Building 71.

Surface Water Potential: The potential for wastes from this unit to migrate to surface water is low. The unit is in the basement of Building 71.

Air Release Potential: There is a low potential for a release to air of wastes contained in this unit. The wastes are primarily in liquid form.

## 3.9 FILTER PRESS/ROLL-OFF BINS

### 3.9.1 Information Summary

Unit Description: The filter press is also located in the basement of Building 71. It is used to separate liquid from waste sludge. Once the liquid portion is removed the remaining solid is transferred to a 200-gallon transport bin and taken outside to two roll-off bins, each with a capacity of 15 cubic yards (1). The two roll-off bins are located near the eastern boundary of the facility. These bins are only used to store metal dusts and filter cake containing metals (4,1).

From 1979 until July 1990, the waste filters were stored in the roll-off bins for approximately one month before transport either off site to be landfilled or hauled off site by Falcon Disposal Service and taken to World Resources Company in Arizona for recycling (1). Since July 1990, the waste filters have all been transported off site and sent to Romic (EPA ID #CAD009452657) for recycling (1,16).

Date of Start-up: This unit began operation in 1979 (4,14).

Date of Closure: This unit is currently active (4).

Wastes Managed: The filter press receives waste sludge from T-16, a tank in the non-chelated wastewater batch treatment system (See Section 3.1). The sludge from this unit may contain metals including copper and nickel which are generated by the rinsing of equipment and other maintenance operations associated with electroplating. (1)

The filter press also receives waste sludge from T-25, a tank in the chelated batch treatment (Unit 3.2). The sludge from this unit may also contain metals, including copper, which is generated by the electroless plating operations and related processes upstairs (1). The filter cake, the portion of the sludge remaining after the liquid is removed, is transferred to a transport bin and taken outside to the roll-off bins for storage (1).

A separate room in the basement houses a dust collector that is fed directly from upstairs. Dust containing gold, copper, nickel, and fiberglass is collected in a 55-gallon drum lined with a plastic bag. When full, the bag is removed, placed in a transport bin and managed in the same manner as the filter cake (1). Approximately 4,500 pounds of dust are generated per year. This dust is sent to Boliden-Metech for gold reclamation (16)

Drilling processes upstairs also generate dust that is fed into a separate room in the basement. The dust collected consists solely of fiberglass, since the dust is generated from a drilling process which takes place in the initial stages of the manufacturing process. The dust is collected in plastic bags which line 55-gallons drums, placed on transport bins, and moved outside to the roll-off bins (17). Approximately 4,500 pounds of dust are generated per year and sent to Arizona with the sludge for copper recycling (16).

Release Control: The filter press is located in the basement of Building 71; therefore, any releases are contained in the basement and the floor spill collection system (See Section 3.8) (1). The roll-off bins are located in a fenced concrete area and are covered except for the incident described below. The dust collector is located in the basement of Building 71 (17).

History of Release: During a DHS inspection of the facility in Fall 1988, it was noted that the two roll-off bins used to store the hazardous filter cake were completely uncovered (10).

### 3.9.2 Conclusions

Soil/Groundwater Release Potential: There appears to be a low potential for past or future releases from this unit.

Surface Water Potential: The potential for wastes from this unit to migrate to surface water is low.

Air Release Potential: The potential for a release to air from the roll-off bins is low. There is a reported incident of the bins being uncovered during a DHS inspection report (10). Since the bins contain filter cake, there may have been an isolated particulate release although visual observation of a release was not recorded.

## 3.10 FINAL WASTEWATER NEUTRALIZATION

### 3.10.1 Information Summary

Unit Description: A 3,800-gallon fiberglass treatment tank (T-13) accepts all of the post-treatment wastewaters generated in the basement. The pH of the solutions entering this tank can range from 1 to 14. Either sulfuric acid or sodium hydroxide are added to lower or raise the pH in the tank (1).

After initial neutralization the wastewaters are transferred from T-13 to another 3,800-gallon treatment tank (T-14). At this stage the wastewaters range in pH from 2 to 12. Either sulfuric acid or sodium hydroxide are again added before wastewaters are sent to a final 3,800-gallon fiberglass effluent tank (T-15). When the wastewater reaches this final tank the pH ranges from 6 to 9.5. They are then discharged to the sewer (1).

Date of Start-up: This unit began operation in 1979 (4, 14).

Date of Closure: This unit is currently active (4).

Wastes Managed: The three final neutralization tanks, T-13, T-14, and T-15, accept waste generated by the non-chelated wastewater batch treatment (See Section 3.1), the chelated wastewater batch treatment (See Section 3.2), the rinsewater treatment system (See Section 3.3), the citric/sulfuric acid treatment (See Section 3.4), and the spent screen wash (See Section 3.6) (1).

The non-chelated batch treatment (See Section 3.1) wastewater contains 100 to 200 mg/L copper and 40 to 60 mg/L nickel. This waste is generated by the rinsing of equipment and other maintenance operations associated with electroplating (1).

The chelated batch treatment (See Section 3.2) wastewater contains 40 to 50 mg/L copper. These wastewaters are generated by the electroless plating operations and related processes upstairs (1).

The rinsewater treatment (See Section 3.3) wastewater contains 0.5 to 0.8 mg/L copper and 5 to 45 mg/L nickel. This wastewater is piped into the system from process areas upstairs (1).

The citric/sulfuric acid treatment (See Section 3.4) wastewater contains a spent bath of 5% citric acid, 5% sulfuric acid, and 20 to 26 mg/L copper. This wastewater is generated by a copper plating machine (1).

The spent screen wash (See Section 3.6) wastewater contains 10% hexylene glycol and is generated by the washing of screens used in the manufacturing of circuit boards (1).

Release Control: Release controls for this unit include its secondary containment in Building 71 and the floor spill collection system (See Section 3.8) (1).

History of Release: There is no documentation in available file information or observations from the VSI to indicate that a release from this unit has occurred (4).

### 3.10.2 Conclusions

Soil/Groundwater Release Potential: There appears to be a low potential for past or future releases from this unit. This unit is in the basement of Building 71.

Surface Water Potential: The potential for wastes from this unit to migrate to surface water is low. The unit is in the basement of Building 71.

Air Release Potential: There is a low potential for a release to air of wastes contained in this unit. The wastes are in liquid and sludge form.

## 3.11 CHEMICAL YARD

### 3.11.1 Information Summary

Unit Description: The Chemical Yard is located toward the southern end of the facility. It is a 10,000-square-foot area consisting primarily of asphalted ground cover with a storm drain and three buildings used to store both hazardous wastes and hazardous materials. The buildings in the Chemical Yard are divided into three types: the bulk tank storage area, the 55-gallon drums and small tank storage area, and the staging area (15). (See Figure 2-2, Facility Map).

The bulk tank storage area is constructed of three cinder block walls; the fourth wall is a chain link fence; and the area is roofed. The building is subdivided into seven rooms, two of these rooms store hazardous waste (15). Access to the rooms requires descending several steps. This design allows for the vault-like secondary containment. One of the rooms in the bulk tank storage area stores a cupric chloride waste solution which is generated by etching copper from circuit boards during the manufacturing process. This waste is routed directly from the process area to one of two 2,600-gallon, cross-linked, polyethylene storage tanks via a transfer pump and plastic piping system. The piping runs through trenches along the basement floor to the south wall of the facility. There it enters a concrete service tunnel connecting Building 71 to the Chemical Yard. Approximately 2,400 gallons of this waste are generated per month. A tanker truck removes waste from this tank once per month (14).

The other room which stores hazardous waste in the bulk tank storage area uses a fiberglass-reinforced plastic, 5,000-gallon tank for spent ammonium hydroxide storage. This tank shares a room with two 5,000-gallon and one 500-gallon product storage tanks. This room is also called the Caustic Store Room (15).

The 55-gallon drum and small tank storage area is also described as a flammable storage area. This area of the Chemical Yard is divided into four rooms. Only one of these rooms stores hazardous waste. This hazardous waste is described as waste chemical laboratory material (15).

The staging area is divided into three areas and stores both hazardous and nonhazardous waste. The areas are divided into storage for corrosives-bases, solvent liquid, and corrosives-acid. Each area has secondary containment consisting of a 550-gallon sump. This area is used primarily to receive hazardous materials before going into on-site processes. Hazardous waste is temporarily stored in these areas before pick-up by a hazardous waste hauler for transport off site. (15).

Date of Start-up: The Chemical Yard began operation in 1979. The cupric chloride waste storage system and the spent ammonia etch storage system in the bulk tank storage area was put into operation in 1981, and designed for a minimum 20-year service life (14).

Date of Closure: This unit is currently active (4).

Wastes Managed: This unit receives cupric chloride waste and ammonium hydroxide waste in the bulk tank storage area. A tanker truck removes these wastes approximately once per month to Southern California Chemical for recycling (1).

The 55-gallon drum and small tank storage area contains waste nickel sulfate, Freon/lead-contaminated rags and gloves, Freon/lead-contaminated filters, liquid Freon, and ammonium hydroxide. A portion of this area is also used to store empty product and waste storage drums. These are triple-rinsed and are recycled by the product manufacturer or reused at the facility (1).

Across from the 55-gallon and small tank storage area is an area used to store the 200-gallon container of waste copper sulfate crystal sludge generated by Unit 3.4 (4).

Release Control: The floors and berms of the bulk tank storage area are constructed of epoxy-coated concrete. The secondary containment for the cupric chloride spent etchant in this room consists of berms to contain 1,460 gallons and a 42-gallon sump. The sump is equipped with a pump with a pumping capacity of 50 gallons per minute. This enables any spills to be pumped to the floor spill collection system (See Section 3.8) in the basement (14). The primary provision for preventing stormwater run-on into the bulk tank storage area is the building roof. Another provision is an 8 foot by 8 foot concrete trench with grate which runs along the front of the building. This trench collects any stormwater draining toward the storage room entrance and routes it to the floor spill collection system (See Section 3.8) in the basement of Building 71 (14).

The 55-gallon drum and small tank storage area has secondary containment which consists of the 12-inch thick reinforced concrete, epoxy-coated, building floor slab, and a dedicated spill collection system. This collection system includes two floor drains, stainless steel gravity drain lines, and a 2,000-gallon capacity secondary containment tank located underground just outside of the north wall of the building. The volume of this underground tank exceeds 10% of the aggregate volume of the maximum number of containerized materials stored (14).

Any spills or leaks in the Caustic Store Room accumulate on the floor. The floor and walls are constructed of 16-inch, reinforced, epoxy-coated concrete, specifically designed to act as secondary containment. Small spills in this area are cleaned up with absorbent materials. The total secondary containment volume for this room is 13,775 gallons (15). Larger spills can be removed with a portable pump, either to 55-gallon drums or to the epoxy-coated drainage trench in front of the building. From the trench waste can drain into the floor spill collection system (Unit 3.8) in the basement of Building 71 (14).

The Chemical Yard has a storm drain which is closed during chemical delivery to ensure a release of spilled materials into the storm drain and Calabazas Creek does not occur (1).

History of Release: On August 13, 1982, 2 liters of spent alkaline etchant were rinsed down the storm drain. IT Corporation flushed and vacuumed the storm sewer with 3,727 gallons of water (40).

On December 14, 1983, 30 gallons of nickel sulfate entered the storm drain in the Chemical Yard as a result of a fiberboard drum being incorrectly transported by a fork-lift. All free liquid was absorbed, the storm drain gate was closed and the storm sewer was blocked at various locations downstream to ensure that the nickel sulfate did not leave the site. IT Corporation flushed and vacuumed the storm sewer for three hours (40).

In November 1988, approximately 2,000 gallons of 98% sulfuric acid, from the bulk tank storage area, was released. The spill was held in the secondary containment structure of the building until it was pumped into a tank truck and transported back to the manufacturer. The sulfuric acid was drummed and transported back to H-P for use on site. Due to the chemical nature of sulfuric acid, the floor had to be retreated with epoxy (16).

### 3.11.2 Conclusions

Soil/Groundwater Release Potential: There appears to be a low potential for past or future releases from this unit.

Surface Water Potential: If H-P follows procedures by closing the storm drain during deliveries and pick-ups of hazardous materials and wastes, then the potential for wastes from this unit to migrate to surface water is low.

However, there have been two releases documented from this unit. One case resulted in a discharge of 2 liters of spent alkaline etchant to the storm drain and into Calabazas Creek. The other case involved a 30-gallon spill of nickel sulfate into the storm drain. The storm drain gate was closed before the nickel sulfate could migrate off site (40).

Air Release Potential: There is a low potential for a release to air of wastes contained in this unit. Wastes in this unit are in liquid form.

## 3.12 FAIRCHILD ACID WASTE NEUTRALIZATION SUMP

### 3.12.1 Information Summary

Unit Description: This unit was constructed and operated by Fairchild as a mixing tank for neutralizing acid waste from production processes. The sump was 8 feet long by 3 feet wide by 6 feet deep. The sump was constructed of concrete and had three manholes along the top. It was located along the west side of Building 70 (3,15).

There are acid waste lines which exit from the west side of the building to the tank (18).

A sump in the Fairchild metal plating area, measuring 2 to 3 feet deep and located beneath the floor grating, collected waste from the metal plating operations. The waste was pumped from the sump through the acid waste lines to the acid waste neutralization sump (18).

Date of Start-up: This unit began operating in 1967 (3).

Date of Closure: This unit was not used after 1979. It was removed in October 1986. There are no records regarding closure of this unit (47).

Wastes Managed: This unit received waste from production processes, chemical room acid waste, VOCs, and metal plating waste. These wastes were neutralized in the sump and discharged to the City of Sunnyvale's public owned treatment works (POTW) (3).

Release Control: This unit was constructed of concrete. There is no record of any form of secondary containment in place as a release control.

History of Release: Investigation by consultants to H-P in 1985 indicated that releases of hazardous substances, including VOCs, had occurred from this unit (3,18).

### 3.12.2 Conclusions

Soil/Groundwater Release Potential: A release to soil and groundwater has been documented from this unit.

Surface Water Potential: There is a low potential to document past releases to surface water from this unit due to its location below ground.

Air Release Potential: There is a low potential to document past releases to air from this unit because the releases occurred below ground.

## 3.13 H-P ACID WASTE NEUTRALIZATION TANK

### 3.13.1 Information Summary

Unit Description: H-P constructed a 1,000-gallon underground mixing tank for use in neutralization of acid wastes (See Section 3.12). The H-P acid waste neutralization tank, also referred to as a mixing tank, was constructed several feet west of the Fairchild sump. H-P used this tank to treat a blended wastestream of hot caustic, alkaline cleaner, and sulfuric acid baths. Although the Fairchild sump was not used to treat wastes while H-P operated, effluent from the mixing tank flowed through the Fairchild sump to the City of Sunnyvale's POTW (3,15).

Date of Start-up: This unit began operation in 1979 (4,14).

Date of Closure: This unit was excavated along with the former Fairchild Acid Waste Neutralization Tank in October 1986 (3). H-P has attempted to receive clean closure for this unit four times: December 1986, July 1987, August 1987, and December 1988. To date, H-P has not received any response from DHS regarding closure of this unit (47).

Wastes Managed: This unit received hot alkaline cleaner, hot caustic soda, and sulfuric acid. These wastes were neutralized to a pH of 9 to 11 before being pumped into the unit for further neutralization before discharge to the City of Sunnyvale's POTW (3).

Release Control: This unit was constructed of concrete. There is no record of any form of secondary containment in place as a release control.

History of Release: Because this unit is located relatively close to the Fairchild Acid Waste Neutralization sump (See Section 3.12), which has documented releases, it is difficult to determine whether or not this unit has also released contaminants to surrounding soils or groundwater.

3.13.2 Conclusions

Soil/Groundwater Release Potential: Contaminants from this unit may have had a high potential to release to surrounding soils and groundwater. Because of this unit's proximity to the Fairchild Acid Waste Neutralization Sump (see Section 3.12), it appears that documentation of an observed release from this unit would be difficult to determine.

Surface Water Potential: There is a low potential to document past releases to surface water from this unit because releases would have occurred below ground.

Air Release Potential: There is a low potential to document past releases to air from this unit because any release would have occurred below ground surface.

### 3.14 PAINT-BOOTH/FLASH BRITE DIP/ALODINE AREA

#### 3.14.1 Information Summary

Unit Description: This unit was composed of three underground concrete vaults. The paint booth liquid waste vault had a volume of 5,000 gallons, the brite dip waste vault had a volume of 1,250 gallons and the alodine waste vault had a volume of 1,000 gallons (15). The vaults were located on the west side of Building 70. Paint booth drains and floor drains in the paint mixing room of Building 70 drained to these tanks (21). Wastewater from the spray paint booths was generated by the periodic draining of the recirculating water system which captured fugitive paint mist (19).

FITs investigative efforts regarding this SWMU indicate that wastes were removed from the site "periodically" and hauled to an approved disposal facility by a licensed transporter. FIT was unable to determine if the waste removal occurred in intervals of less than or greater than 90 days. Therefore it is unknown whether this SWMU is RCRA-regulated (19).

Date of Start-up: This unit began operation in 1979 (4,14).

Date of Closure: H-P stopped using this unit in 1982. Above-ground tanks were temporarily used to replace the use of the underground Brite Dip and Alodine Waste Tanks (18). The above-ground tanks were included in the closure attempts of H-P's Acid Waste Neutralization Tank (See section 3.13) (47).

Wastes Managed: A review of paints and solvents used in the paint booths indicated that several volatile organic compounds and nonvolatile petroleum fractions which comprised the paints and thinners used in the paint booths. The volatile organic compounds identified as components of paints used in the booths included methyl ethyl ketone, methyl isobutyl ketone, methyl n-butyl ketone, butyl cellusolve, and ethyl benzene. Nonvolatile components of the solvent-based paints and thinners included aliphatics and aromatics heavier than C-8 (petroleum fractions with a chain of more than eight carbons), paraffins, and phenols (19). One of the thinners used has been specifically identified as Chevron Solvent 1250. A component of this solvent is Chevron Thinner 325 which consists of 98% paraffins and napthenes (21).

Brite dip waste, which is a caustic solution resulting from etching aluminum, was stored in a 1,250-gallon concrete vault. The brite dip waste contained detergent cleaner with 6% sodium hydroxide and 4% sulfuric acid (3).

Alodine waste, an acid solution containing chromium and heavy metals, was stored in a 1,000-gallon vault. The alodine waste vault also contained 1% chromic acid with a pH of 4 (18).

Release Control: The vaults were constructed of concrete and did not have any form of secondary containment associated with them (15,18).

History of Release: The 5,000-gallon paint booth liquid waste vault was identified by consultants to H-P as leaking. Trichloroethylene (TCE), 1,1,1-trichloroethane (TCA), 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethylene (1,1-DCE), and 1,2-dichloroethane (1,2-DCE) were detected in surrounding soils and in groundwater monitoring wells near the tank. These contaminants were also detected in soils after vault removal. Although the aforementioned contaminants were not known to be used in conjunction with the paint booths and may be present due to regional groundwater contamination, these chemicals were used on site. Chemicals used both in the paints booths and detected in soils near the paint booth vault include phenols and non-specific nonvolatile petroleum fractions (19).

3.14.2 Conclusions

Soil/Groundwater Release Potential: There has been documentation of contaminated soils surrounding the paint booth liquid waste vault. Although groundwater beneath this area was sampled and did not contain any of the wastes known to be managed by this unit, the chemicals detected were used on site. Soil surrounding the vaults was removed during vault removal for clean closure work (21).

Surface Water Potential: The potential for past wastes from this unit to migrate to surface water appears to be low because the releases occurred below ground.

Air Release Potential: Due to unit removal, there is a low potential for a release to air of wastes handled in this unit.

3.15 WASTE OIL TANKS

3.15.1 Information Summary

Unit Description: The maintenance shop used a 550-gallon waste oil tank constructed of steel. This tank was removed in early 1990 and replaced with a 550-gallon fiberglass tank. The steel tank had no secondary containment associated with it (4). There may have been some instances where the storage of waste oil on site exceeded 90 days (48).

Date of Start-up: This unit began operation in 1975 (17).

Date of Closure: The steel tank was removed in early 1990 and replaced with a fiberglass tank which is currently being used (22).

Wastes Managed: This unit handles waste oil from the maintenance shop area (4).

Release Control: The steel tank did not have any form of secondary containment associated with it. The new waste oil tank is constructed of double-walled fiberglass which is designed to provide secondary containment (15).

History of Release: Two soil samples were collected beneath the former location of the steel waste oil tank. One sample collected at 13.5 feet below ground surface (bgs) was analyzed for benzene, toluene, ethylbenzene, and total xylenes. Results from analysis indicated toluene present at 56 µg/L; the other chemicals were not detected. The other sample, collected at 9 feet, was analyzed for a large variety of VOCs. Results from the analysis indicated that none of the chemicals tested for were detected (22).
According to contractors to H-P, contaminated soil detected during this sampling event was removed (22).

### 3.15.2 Conclusions

Soil/Groundwater Release Potential: A release from the waste oil tank on site may have occurred based on the presence of toluene in soils (22).

Surface Water Potential: There is a low potential to document releases to surface water from this unit because the contamination was detected in subsurface soils.

Air Release Potential: There is a low potential to document a release to air from this unit because the release occurred below ground.

## 3.16 FRENCH DRAIN/SUMP B AND SUMP D

### 3.16.1 Information Summary

Unit Description: Sump B and D collect groundwater from a French drain system located at the perimeter of Building 71 used to protect the basement from flooding due to a high groundwater table (3,23). Both sumps are constructed of concrete and handle different amounts of groundwater. Sump B is designed to treat 30,000 gallons per day of groundwater. Sump D is designed to treat 5,000 gallons per day of groundwater. The treatment in these tanks involves diffused aeration to remove volatile organic compounds. All piping involved with this unit is constructed of polyvinylchloride (PVC). After the water is aerated, it passes through the storm drain system to Calabazas Creek (24).

Date of Start-up: The French drain system was built in 1979, and began operating in 1980. In April 1986 diffused aeration was installed in Sumps B and D. This unit began operation July 6, 1987. After one day of operation the system was shut down due to a lack of water flowing into the sumps. The sumps were started again on September 8, 1987 after modifications were made to increase the flow into the sumps (3).

Date of Closure: The unit can be considered active although it has not been used since 1988 due to a decrease in groundwater elevation beneath the site (4).

Wastes Managed: This unit receives contaminated groundwater from beneath the site. The groundwater collected contains primarily trans-1,2-dichloroethylene (trans), TCA, and TCE (3).

Release Control: There is no secondary containment associated with this unit (24).

History of Release: Two weeks after the system started operating, it was discovered that a discharge of untreated groundwater to Calabazas Creek had occurred on two occasions. One instance was due to operator error, and the other was due to a blower shutdown caused by an increased pressure in the air line. An unknown quantity of untreated groundwater discharged at this time (25).

On January 29, 1990, H-P exceeded its effluent limitations due to a malfunction of the timer on a blower unit. The blower malfunction may have been due to clogging of air diffusers by sediment, thereby causing contaminated groundwater to pass through the system and discharge to Calabazas Creek without treatment (25).

### 3.16.2 Conclusions

Soil/Groundwater Release Potential: Due to the relationship between this treatment system and the groundwater beneath the site, a release from this unit would be difficult to document.

Surface Water Potential: Groundwater treated in this unit is discharged to Calabazas Creek, a surface water body located approximately 1 mile west of the site. Records indicate that a discharge of untreated groundwater had occurred due to a malfunction of the timer on a blower unit (25).

Air Release Potential: This treatment system is permitted through BAAQMD. There is a low potential for a release above permitted levels to air of wastes treated
in this unit.

## 3.17 AREAS OF CONCERN

The three areas described below appear to be potential source areas of contamination beneath the site. National Semiconductor has claimed full responsibility for contaminants detected beneath the UTC property and is willing to be financially responsible for all remediation (26).

Records regarding the UTC property and their waste management practices were unavailable to FIT at the time of this investigation. Therefore, FIT was unable to determine if the SWMUs associated with the three Areas of Concern were RCRA-regulated.

### 3.17.1 Former Solvent Drum Storage Area

The former solvent drum storage area located on the west side of the UTC laboratory building has been identified as a potential source of chemicals in soil and groundwater (3). Chemical use at UTC was in research-scale quantities. Chemicals were delivered in 1-gallon and 55-gallon containers. Solvents delivered and stored in the solvent drum storage area included TCE, 1,1,1-trichloroethane, and Freon for use as general degreasers. Other solvents stored in this area included ethylacetate, toluene, methyl ethyl ketone, methyl isobutyl ketone, and methylene chloride (5,27). The solvent drum storage area appears to have been used through UTC's occupation of the site, from 1963 until 1983.

### 3.17.2 UTC Acid Waste Neutralization Sump

There were three underground acid waste neutralization tanks at UTC. It appears that only one of these sumps may have contributed to groundwater contamination beneath the site. Soil samples collected beneath the three sumps indicated contaminated soil existed beneath only one of the sumps. Consultants to UTC sampled liquid from the sumps to characterize the waste. Table 5-2 shows concentrations of solvents detected in the composite sample (28).

### 3.17.3 Drainage Trench Near Drum Storage

The drainage trench associated with one of the solvent barrel storage areas may have received spilled hazardous substances due to improper handling of the substances (5). The quantity of wastes that may have migrated to this area is unknown. The types of wastes that may have been spilled at this location would appear to be the same types of wastes handled at the barrel storage area mentioned above (5).

The following table is a summary of potential releases to the soil and groundwater, surface water, and air.